

PLANT PORTRAITS

17. *Acacia araneosa* Whibley (Leguminosae)

Acacia araneosa Whibley, Contrib. Herb. Aust. 14: 1 (1976); *Acacias of South Australia* 94 (1980).

Illustration: Based on fresh material preserved under *Whibley 9687* from a plant grown in the Mallee section of the Adelaide Botanic Gardens.

Small erect wispy trees 3-8 m high; trunks slender 4-7 cm in diameter, solitary or dividing at about 1 m above ground level. *Branches* smooth, flexuose towards their apices; bark smooth, a grey reddish brown on juvenile branches. *Phyllodes* slender, terete, 18-35 cm or sometimes up to 69 cm long, 1-1.8 mm in diameter, becoming almost tetragonous when dry, obscurely 4-nerved, glabrous, light green, sometime scurfy, tapered at the apex into a non-pungent point. *Glands* small, orbicular and situated near the base of the phyllode. *Inflorescence* axillary racemes which become paniculate at the ends of branches due to phyllode reduction; racemes with 5-9 sparsely arranged heads; flower heads yellow, compact globose with 50-70 flowers; petal 5, free, sparsely golden hairy on the acute tips. *Legumes* stipitate, linear, straight or slightly curved, 6-14.5 cm long, 4-6 mm broad, coriaceous, undulate, glabrous, olive green, becoming brown when mature; margins prominent, nerve-like and somewhat constricted between seeds. *Seeds* longitudinal or slightly oblique in legume; funicle a yellow reddish brown, extending c. three-quarters around the seeds and terminating in a yellowish clavate aril.

Acacia araneosa occurs in a small area of the northern Flinders Range from Balcanoona along the range into the Arkaroola Sanctuary. This species occurs within the Gammon Range National Park and is considered an endangered species by Leigh, Briggs and Hartley 1981 with the classification of 2 E C, i.e. the population is too small to ensure survival even if present in a proclaimed National Park. The survival of the plants could be threatened by the predation of goats and I have personally noted severe damage to some trees being battered and broken down. With severe climatic conditions and drought periods natural pressure is brought to bear on these plants to survive and re-establish.

This graceful plant is found on calcareous soil on hillsides and ridges often in dense stands associated with *Eucalyptus gillii* and *Triodia irritans*. It flowers throughout the year so that mature pods and flowers can be found on the same trees.

Acacia rivalis is common in the surrounding area and a variant with phyllodes flat and 1-3 mm—possibly a hybrid between *A. araneosa* and *A. rivalis*—wide has been collected with the main population of *A. araneosa* and grown successfully in the Adelaide Botanic Gardens and a private garden. *A. araneosa* is a very distinctive species which is distinguished from other South Australian species of *Acacia* by its long terete phyllodes and light wispy appearance.

Other species of *Acacia* which are considered closely allied are *A. rivalis*, *A. harveyi*, *A. chrysella* and *A. juncifolia*. The first specimens of it were collected in 1966 by Mr F.J. Vickery & J.L. Johnson, members of the South Australian Pastoral Board near Nudlamatana Well, c. 15 km NW of Bacannoon Homestead.

Reference

Leigh, J., Briggs, J. & Hartley, W. (1981). 'Rare or threatened Australian Plants'. (Austr. Natl Parks & Wildlife Serv. Special Publ. 7: Canberra).

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Acacia arancosa Whibley. A, flowering and fruiting branch; B, flower; C, flower head with flowers removed; D, transverse section through leaf; E, attachment of leaf to branch; F, legume; G, opened legume to show seed and funicle.

18. *Anthocercis angustifolia* F. Muell. (Solanaceae)*Anthocercis angustifolia* F. Muell., *Trans. Philos. Soc. Victoria* 1 (1855) 21.Illustration: Based on fresh material preserved as *L. Haegi* 2694, 13.viii.1984, 14 km NE of Adelaide, in Torrens River Gorge, 34°51'S, 138°44'E (AD).

Erect, usually sparingly-branched shrub 0.3-2.5 m high with corky bark at stem-base. *Branches* initially remaining photosynthetic, smooth, moderately to densely pubescent with porrect glandular hairs 0.2-0.5 mm, sessile glandular hairs c. 0.05 mm and sometimes simple eglandular hairs 0.1-0.15 mm, the indumentum soon becoming sparse with only scattered eglandular hairs remaining. *Leaves* sessile, often with rapid otherwise with gradual decrease in size distally; *lamina* usually \pm linear, sometimes narrowly to very narrowly elliptic to obovate, length:breadth (3.3-) 4-18 (-25), usually 2-40 (-50) x 0.5-3 (-6) mm but up to 95 x 8 mm on seedlings, densely pubescent above with glandular hairs mainly 0.05-0.1 mm and fewer 0.2-0.4 mm, especially towards the margins, moderately pubescent below with glandular hairs 0.2-0.4 mm, the lower leaves glabrescent; *base* truncate to attenuate; *apex* bluntly to angularly acute; *margin* entire, usually slightly recurved, sometimes \pm flat; *midrib* obscure to faintly indented above, slightly prominent to obscure below. *Flowers* malodorous, solitary and extra-axillary (when usually leaf-opposed), or terminal, the leaves in the flowering region very small, but otherwise similar to stem leaves. *Pedicel* (2-) 3-6 mm, oblique, moderately to densely pubescent with variable porrect glandular hairs 0.05-0.65 mm and sometimes scattered simple eglandular hairs 0.08-0.15 mm. *Calyx* 4.0-7.0 mm long, moderately to densely pubescent outside with porrect glandular hairs 0.1-0.65 mm and sometimes simple eglandular hairs 0.1-0.15 mm, inside moderately pubescent with porrect to antrorse glandular hairs 0.05-0.1 mm and fewer to 0.2 mm especially towards lobe apices; *calyx-lobes* 2.2-3.5 (-4.3) x 0.7-1.3 mm, bluntly to angularly acute, clearly longer than the tube [ratio 1.4-2.3]. *Corolla* with funnel-shaped tube and patent, stellate, sub-regular limb, 19-27.5 mm in total length, white to creamy-yellow with green striations in throat and faint violet longitudinal bands on tube outside, sparsely to moderately pubescent outside with porrect glandular and sometimes eglandular hairs 0.1-0.35 mm, inside densely papillate on the lobes with papillae 0.05-0.25 mm; *tube* patent for 0.7-1.5 mm below the limb-base, 6.5-8.3 mm long, diam. 1.5-1.8 mm at base, broadened to 4.5-7 mm and then to 6-8 mm, with three ribs of raised tissue running to the base from each lobe; *lobes* linear [L:B 4.5-6.8], 12.5-19.5 x 2-3.5 mm, apex angularly acute, margin flat. *Stamens* 4, didynamous, 4.7-6 and 3.2-5 mm; *staminode* 1.2-4.5 mm; *anthers* bilocular, 0.9-1.3 x 0.7-1.4 mm, the upper pair 0.5-1.7 mm below corolla-tube orifice. *Ovary* ovoid-ellipsoid to broadly ovoid, 1-1.5 (-2) x 0.6-1.3 mm, surrounded at base by an orange-yellow annular disc; *ovules* 14-21; *style* 3.9-4.6 mm, 0-0.7 mm above upper anthers; *stigma* 0.2-0.3 x 0.5-0.7 mm. *Capsule* broadly ovoid-ellipsoid to truncate-pyriform, (4.5-) 5.5-8 (-8.5) x (4-) 4.5-5 mm. *Seeds* 9-18, 1.7-2.2 x 1-1.1 mm, with reticulate surface.

The genus *Anthocercis* belongs to the almost endemic Australian tribe Anthocercideae in family Solanaceae (Purdie et al. 1982; Haegi 1983). Of the nine species in the genus, eight occur in Western Australia, where seven species are endemic. The distribution of one Western Australian species (*A. anisantha*) extends to Eyre Peninsula in South Australia. *A. angustifolia*, a South Australian endemic, is found in the Mount Lofty Ranges near Adelaide and in the Flinders Ranges, representing the most eastern occurrence of the genus. Its relatively large white or pale yellow scattered flowers combined with the long narrow glandular leaves make this a distinctive species within the genus.

A. angustifolia usually occurs along deeply cut watercourses, not close to streams, but on the steep, rocky, often dry, slopes above them, in clayey-loam soils. The substrate parent material in the areas of occurrence is quartzite. This species is a pioneer which becomes locally abundant following disturbance, in particular fire, the population then gradually declining. In the Torrens River Gorge where the material for the illustration was collected



Anthocercis angustifolia F. Muell. A, habit; B, basal part of stem showing corky bark; C, new shoot with large leaves; D, flowering branchlet; E, flower in distal view; F, advanced bud opened out; G, flower with perianth removed, showing extrorse positioning of anther slits; H, capsule; I, seed.

this species is found as scattered plants on a steep north-facing rocky slope growing in humus-rich soil of pH6, in an open shrubland, with *Dodonaea viscosa* ssp. *spatulata*, *Olearia tubuliflora*, *Trymalium wayi*, *Phyllanthus saxosus*, *Xanthorrhoea quadrangulata*, *Pimelea stricta*, *Logania vaginalis* and *Hibbertia sericea* with scattered trees of *Allocasuarina verticillata* and some *Banksia marginata*.

Although the total distribution of this species spans c. 400 km, the populations are small and scattered and the plant is considered rare. It occurs in the Morialta, Telowie Gorge and possibly Black Hill Conservation Parks and in the Flinders Ranges National Park. It is assigned the conservation status 3RC by Leigh et al. (1981).

Like most *Anthocercideae*, *A. angustifolia* has protogynous, malodorous flowers with the anthers dehiscing extrorsely after the stigma has withered (Haegi 1983). Although a coloured moist annular disc is present around the base of the ovary, nectar does not appear to be produced. Pollen vectors have not been observed but seem to be necessary for pollination. The sympodial growth of the flowering region continues to produce flowers over a period of six months, from May to November.

Although unknown in cultivation, *A. angustifolia* is a plant of some potential in ornamental horticulture. During its extended, useful, winter and spring flowering period it presents a striking sight, covered in white or pale yellow delicate star-shaped flowers. It prefers well-drained, slightly acid soils and is probably best propagated from seed. Moderate to heavy pruning following flowering would assist in producing a more compact plant of better proportions.

All species of *Anthocercis* contain alkaloids (Evans & Ramsey 1983) and the only sample of *A. angustifolia* known to have been tested, proved at 0.1%, to have the highest alkaloid content of any species of the genus (W.C. Evans, University of Nottingham, pers. comm., May 1979). Half of this was accounted for by hyoscyamine, an alkaloid related to the commercially more important hyoscyne which is found in considerable quantities in species of *Duboisia*, also of tribe *Anthocercideae*. The presence of a new alkaloid, acetoxyhyoscyamine, has been tentatively recorded from *A. angustifolia* (Evans & Ramsey 1982).

References

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- Haegi, L. (1983). 'Systematic and Evolutionary Studies in the Australian Solanaceae'. Ph. D. thesis, Flinders University of South Australia, xi, 568p.
- Leigh, J., Briggs, J. & Hartley, W. (1981). 'Rare or Threatened Australian Plants' p. 178. (Australian National Parks and Wildlife Service: Canberra).
- Purdie, R.W., Symon, D.E. & Haegi, L. (1982). Solanaceae. In A.S. George (Ed.), 'Flora of Australia', vol. 29 (Aust. Govt Publishing Service, Canberra).

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19. *Eremophila barbata* Chinnock, sp. nov. (Myoporaceae)

Illustration: Based on the type specimen and on a cultivated plant from the type collection.

Frutex parvus ramis manifeste tuberculatis, glabris; *foliis* sessilibus alternis, obovatis, serrulatis, maculatis tuberculatisque in paginis abaxialibus, glabris; *floribus* solitaribus, sessilibus; *corolla* lilacina, extra-tubo villosa, labi inferni lobo mediano barbato; *staminibus* 4, glabris; *ovario* oblongo, glabro; fructu cylindrico glabro.



Eremophila barbata Chinnock. A, habit; B, enlarged portion of branch; C-D, abaxial surface of leaf showing scattered tubercles (C) and translucent spots (D); E-F, side and front view of flower; G-H, abaxial and adaxial surface of sepal; I, gynoecium; J, fruit; K-L, cross-section of fruits to show 2-locular fruit without seed (K), and fruit filled by one seed (L).

Type: R.J. Chinnock 4996, Hincks National Park, South Australia, 21.x.1979 (holotype: AD; isotypes CANB, K, MEL, MO, NSW, PERTH, US, W).

Small shrub to 1 m tall. *Branches* spreading, terete, pale brown but often purplish towards tips, prominently tuberculate, glabrous. *Leaves* sessile, alternate, clustered, spreading, green often purplish along margins, slightly glaucous, obovate, 5-9 (-10) x 3-7.5 mm, obtuse, margins serrulate, surface flat or undulate with scattered tubercles projecting from abaxial side and a few translucent spots showing through lamina; minutely glandular-papillose, glabrous, non-viscid but older leaves often shiny. *Flowers* solitary, sessile. *Sepals* 5, linear-subulate, 2-5 x 0.5-1 mm, glabrous. *Corolla* 7-12 mm long, lilac, unspotted, glabrous outside, inside of tube villous, medial lobe of lower lip prominently bearded; lobes acute. *Stamens* 4, upper pair included, lower pair often exerted beyond throat, glabrous. *Ovary* oblong but slightly dilated at base, c. 1.5 x 0.6 mm, obtuse, pale yellow, bilocular with two ovules per loculus, glabrous; style glabrous. *Fruit* cylindrical, slightly constricted at base and apex, 2.5-3.5 x 0.8-1 mm, glabrous. *Seed* unknown.

The most closely allied species to *E. barbata* are *E. crassifolia* and *E. behriana* and the latter species is known to occur sympatrically with it. *E. barbata* differs from these species in having glabrous branches, leaves with serrulate margins, prominent translucent spots which show through the lamina and narrower cylindrical fruits.

Eremophila barbata is extremely rare being restricted to a small area in Hincks Conservation Park on Eyre Peninsula. Although extensive searches have been made for *E. barbata* within the Conservation Park and outside, it has only been found in one small area and the two creeks immediately to the south.

The vegetation is a low mallee scrub 2-3 metres tall dominated by *Eucalyptus dumosa*, *E. floctioniae* or *E. calycogona*. Interspersed with the mallee scrub are occasional thickets of *Melaleuca uncinata*. *Eremophila barbata* occurs in mallee scrub where it sometimes dominates the understorey and grows on rocky clay (sometimes slightly sandy) loams. It is absent from the *Melaleuca* dominated areas.

Eremophila barbata has been in cultivation in South Australia since 1978 and it is now quite commonly grown. Unlike wild plants which grow erect to 1 metre, cultivated plants are always low growing and spreading, rarely attaining 0.25 m tall. They exhibit a similar growth habit to that displayed by many conifers where cuttings derived from lateral shoots never develop into erect growing ones but merely continue to grow laterally.

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